

REMARKS

Responsive to the outstanding Office Action, applicant has carefully studied the Examiner's rejections and the comments relative thereto. Favorable reconsideration of the application is respectfully requested in light of the amendments and following detailed arguments.

In the amendment, claims 16, 25 and 26 were amended, and claims 29 and 30 were canceled. It is submitted that no new matter has been entered into the claims through these amendments.

REJECTIONS UNDER 35 USC §112, second paragraph

The Examiner rejected claims 16-33 under 35 USC 112, second paragraph, for indefiniteness. The Examiner specifically rejected claims 16, 25-26 and 29-30.

With regard to claim 16, the claim has been amended to remove "an argon/oxygen plasma" which has been replaced with "an argon and oxygen plasma" to clarify exactly what is being claimed. It is believed that this clarifies the subject matter defined by the claim.

With regard to claims 25-26, it is respectfully submitted that since the independent claim defined an upper limit, the mere inclusion of a new lower limit (higher than the previous lower limit) does not render the claim indefinite as the upper limit of claim 16 is read into the claims dependent thereon. However, to further prosecution of the application, claims 25 and 26 have been amended to include the same upper limit present in claim 16. It is therefore believed that these claims fully comply with the requirements of 35 USC 112, second paragraph.

With regard to claims 29-30, these claims have been canceled herein, thereby rendering the rejection thereagainst moot.

In view of the above, reconsideration and withdrawal of the rejections under 35 USC 112, second paragraph are respectfully requested.

REJECTIONS UNDER 35 USC §103

The Examiner rejected claims 16-33 under 35 USC 103 as being unpatentable over Taniguchi et al. The Examiner states that Taniguchi teaches making shaped or coated articles, that may be optical particles, using a mixture of fine inorganic particles in a matrix material that may be polymeric compounds. The Examiner acknowledges that Taniguchi does not disclose information on energies of the ions as they impinge on the substrate or discuss the presence of a refractive index gradient nor the wavelengths involved in the total luminous transmittance measurements. The Examiner states, however, that these numbers would have been obvious to one of ordinary skill in the art.

Claim 16, as amended, defines a process for reducing the surface reflectance of polymer substrates to less than 2% in the wavelength range from 400 nm to 1100 nm. A refractive index gradient layer is formed by means of ion bombardment using high-energy ions which are generated by means of an argon and oxygen plasma as plasma ion source. The ions impacting at least one substrate surface during the ion bombardment have an energy of from 100 eV to 160 eV, and the duration of the ion bombardment is from 200 to 600 s, and the ion bombardment is carried out until a refractive index gradient layer with a thickness of at least 230 nm has been formed.

The present invention involves directly impacting the surface of a polymer substrate with ions under conditions mentioned in independent claim 16. The disclosure of Taniguchi addresses a process for producing transparent shaped articles with enhanced anti-reflecting effect. The treatment with an activated gas forms an anti-reflective thin film on a surface of an optical transparent article. The film formed thereby contains finely divided particles of an inorganic substance. These particles have an average particle size in the range 1 to about 300 milli-microns (as reflected in claim 1).

In contrast the process according to amended claim 16 is addressed to the treatment of a substrate, which is completely made of an organic polymer without any enclosed other elements. The result of this process is only a modification of the surface and the formation of a refractive index gradient layer with a thickness of at least 230 nm. It is respectfully submitted that in light of these differences, the present invention is not

rendered obvious by the Tanaguchi reference. It is only through the present disclosure that one would considering modifying Tanaguchi in such a manner as is presently claimed.

It is therefore believed that independent claim 16 distinguishes over the applied art of record. Therefore, reconsideration and withdrawal of the present rejection are respectfully requested.

DOUBLE PATENTING

Claims 16-33 were also provisionally rejected under the doctrine of non-statutory obviousness-type double patenting as being unpatentable over claims 1-7, 12-18 and 24-25 of copending application 11/662,550.

Copending Application 11/662,550 is drawn to a method for forming an optical element for absorbing radiation. This is illustrated in claim 1 of the copending application which claims "a method for the manufacture of a radiation-absorbing optical element that includes a substrate of plastic, comprising the steps of: forming a layer with a graduated refractive index on at least one surface of the substrate, and subsequently applying a metal layer onto the layer with the graduated refractive index."

This is in contrast to the present method for reducing the surface reflectance of an optical element which is formed according to the claimed present invention. The subject matter of these two applications is thus addressed to different inventions, and as such, they do not constitute double patenting.

It is therefore believed that independent claim 16 distinguishes over the applied art of record.

SUMMARY

In view of the forgoing, independent claim 16 is believed to be allowable over the applied art of record, and action towards that end is respectfully requested. Claims 17-28 and 31-33, which depend directly or indirectly from independent claim 16 are believed to be allowable based, at least, upon this dependence.

Should the Examiner wish to modify the application in any way, applicant's attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

/Mark A Hixon/
Mark A. Hixon
Registration No. 44,766

ATTORNEYS
Marshall & Melhorn, LLC
Four SeaGate - 8th Floor
Toledo, Ohio 43604
(419) 249-7114
(419) 249-7151 Facsimile
HIXON@MARSHALL-MELHORN.COM